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IMPROVISED EXPLOSIVE DEVICES IN IRAQ

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GENERAL OBSERVATIONS: IEDs IN IRAQ

TYPES OF INITIATION DEVICES

- **RADIO CONTROL (RC)**
- **COMMAND WIRE (CW)**
- **TIME FUSE/TIMER**
- **VICTIM ACTUATED (BOOBY TRAP)**

MOST ATTACKS IN THE SUNNI TRIANGLE

- **2400-0600: LOW ATTACK INCIDENCE**
- **0900-1200: HIGH ATTACK INCIDENCE**

RC DEVICES ENCOUNTERED

DEVICE	RANGE
Car alarm/keyless entry	200 m
Wireless doorbell	200 m
Cordless phone	100 m
Nokia phone	1-2 km+
Model car/toy receivers	1-150 m
Transceivers/decoder	5 km

VEHICLE CONVOYS ARE PRIME TARGETS FOR IEDs

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RCIED INITIATORS: CAR ALARMS/KEYLESS ENTRY SYSTEMS



Car alarm receiver

- 12 V power
- Effective range 100-150 m

- Most common RCIED initiator
- No modification req'd; output taken to detonator



Car alarm transmitters (key fobs)

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RCIED INITIATORS: WIRELESS DOORBELLS



- Inexpensive
- Readily available
- Simple to modify for IED use
- Output taken from chime speaker

Doorbell transmitters

Doorbell receiver



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RCIED INITIATORS: CORDLESS PHONES



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Long-range handset and base station (12 V power)



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HOUSEHOLD handset and base station (12 V power)

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RCIED INITIATORS: MODEL TOYS



Model receiver in box



Futaba Model 6XA-FM



Trigger controller



Toy car modified as RCIED

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RCIED INITIATORS: TWO-WAY RADIOS



Two-way radio hidden in a wooden box

- Large choice of frequencies
- Ranges of up to 5 km
- Some homemade decoder boards encountered
- Requires some degree of skill



Two-way radio and decoder

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SAMPLE THREAT FREQUENCIES FOR RCIEDs IN IRAQ

Generic Type	Name	Transmitter Tx	Tx Frequency MHz	Receiver	Rx Frequency MHz
Model Car	QUNXING	Hand Controller	27.174	Servo Unit	27.174
Model Car	ELENCO	Hand Controller	27.3	Servo Unit	27.3
Model Car	UNBRANDED	Hand Controller	27.8750	Servo Unit	27.8750
Model Car	FUTABA T6XA	Hand Controller	35.0800	Servo Unit	35.0800
Model Car	TOP SPEED	Hand Controller	35.4680	Servo Unit	35.4680
Cordless Phone	KINGTEL	Handset	49.6700	Base Unit	46.6100
Cordless Phone	PANASONIC	Base Unit	46.8690	Handset	49.9300
Remote Camera Switch	GMC	Code Box	135.4800	Camera Remote Switch	135.4800
Transceiver	YAESU VX-110	Transceiver	148.0500	Transceiver	148.0500
Wireless Door Bell	SHUNDA	Door Bell	284.4000	Chime	225.5000
Car Alarm	SEGA SE-600	Key Fob	301.3200	Alarm Rx module	301.3200
Car Alarm	MICRO	Key Fob	301.6700	Alarm Rx module	301.6750
Air Conditioning	WOOKEE	Key Fob	304.5000	Unknown	304.5000
Keyless Entry System	UNBRANDED'	Key Fob	310.0000	Alarm Rx module	310.8000
Wireless Door Bell	QUSUN	Door Bell	313.8477	Chime	313.8477
Long Range Cordless Phone	SENAO SN-258	Base Station	385.0000	Handset	260.0000
Car Alarm	SUN-I	Key Fob	360.0000	Alarm Rx module	360.0000
Car Alarm	FAWAZ AL KHATEEB	Key Fob	360.0000	Alarm Rx module	360.2220
Car Alarm	AL KHATEEB	Key Fob	360.0000	Alarm Rx module	360.6000
Car Alarm	CA 850	Key Fob	360.2200	Alarm Rx module	356.7130
Early Warning System	TAREEK AL-SALAMA BUREAU	Key Fob	418.0000	Boxed Rx	418.0000
Relay Receiver Decoder	UNBRANDED'	Key Fob	418.0000	Rx Decoder	418.0000
Car Alarm	PUMA 66	Key Fob	432.9000	Alarm Rx module	433.9200
Wireless Door Bell	RL	Door Bell	433.9660	Chime	433.0000
Car Alarm	TOPP GUNN	Key Fob	433.0000	Rx Decoder	433.0000
Transceiver	APPOLO FLY TALK	Transceiver	433.5000	Transceiver	433.5000
5 Relay Device	UNBRANDED'	Key Fob	434.0000	Boxed Rx	434.0000
Car Alarm Pager	RED SCORPIO	Car Alarm	433.9200	Pager	433.9200
Long Range Cordless Phone	NOKIA	Base Station	456.3000	Handset	245.7000
PMR radio	UNBRANDED	Transceiver	462.7820	Transceiver	462.7820
Long Range Cordless Phone	SINAO	Base Station	NK	Handset	225.7890

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RCIEDs: PRIORITY OF THREAT FREQUENCIES

Threat Bands		
Priority	Frequency	Device
Medium	27 MHz Servo	Model Car
Medium	35 MHz Servo	Model Car
Low	47 - 49 MHz	Cordless Phone
Low	134 - 174 MHz	Various
Low	255 - 265 MHz	Various
High	283 - 315 MHz	Various
High	354 - 362 MHz	Car Alarm
High	Various Freq; Long-Range Cordless Phones	
Med	410 - 436 MHz	Various

Note: this accounts for about 25% of devices in theater; balance are unknown, but can be assumed to have a similar distribution

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IED MAIN CHARGES

- Majority are ordnance items: artillery shells and mortar rounds
- Bulk TNT, PE-4, and PE-4A also used (PE-4 and PE-4A are RDX-based)
- No homemade explosives encountered



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IED CONCEALMENT

- **Cast in concrete**
- **Hidden in roadside trash**
- **Placed in burlap or plastic bags**
- **Concealed in tires**
- **Hidden in trees**



100-mm projectile cast in concrete

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EOD cratering charge hidden in a tire on roadside

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IED INITIATION

- **Primarily commercial electric blasting caps: several foreign designs**
- **Detonating cord also used**
- **Standard procedure: fuze wells potted with PE-4A; blasting caps or detonating cord then inserted**



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155-mm artillery shell: PE-4A potted into fuze well; detonating cord run through 1 oz. exploder/primer

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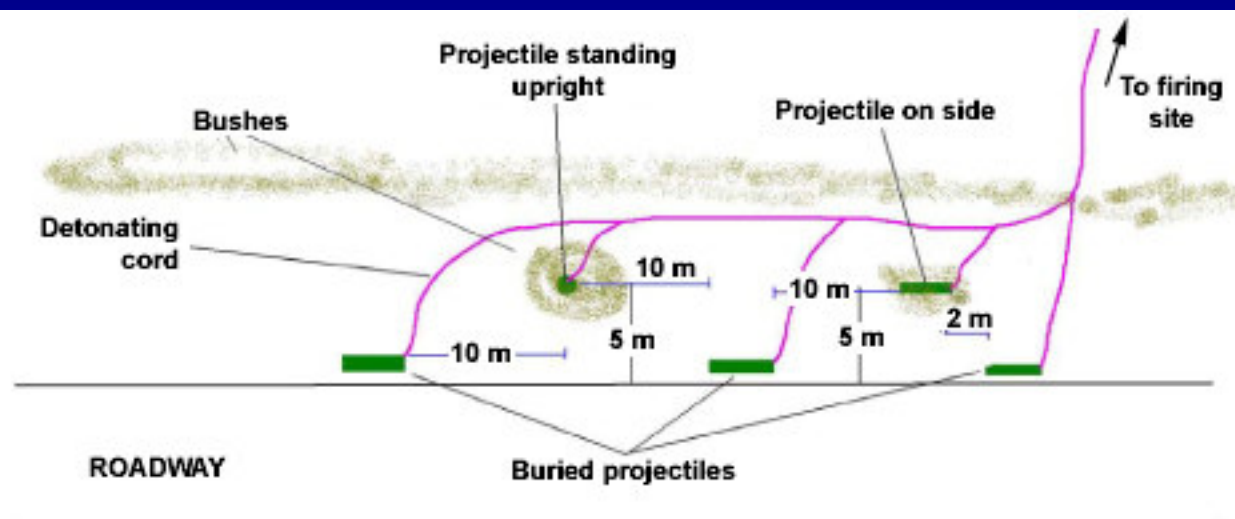
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COMMON VEHICLE TARGETING SCENARIO: ARTILLERY SHELLS DAISY-CHAINED WITH DET CORD



five 155-mm
artillery shells
daisy chained
with det cord;
main line/
branch line
configuration



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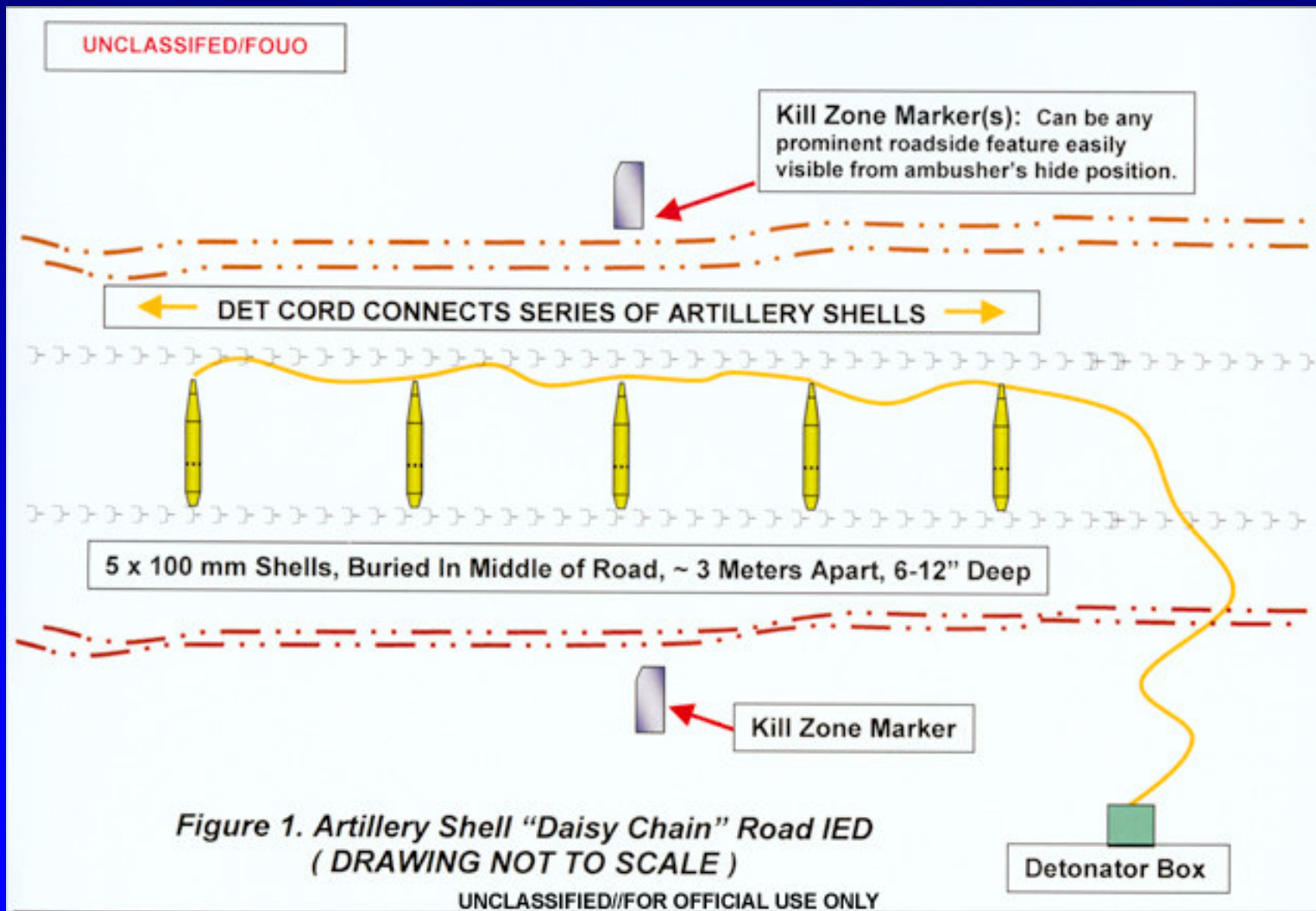
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DAISY CHAINED ARTILLERY SHELLS



- Typical setup
- "Kill zone" markers used

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DAISY CHAINS FEATURING MORE THAN 20 ROUNDS HAVE BEEN DISCOVERED



- 22 155-mm rounds
- Daisy chained with det cord
- 380 m "kill zone"
- Rounds buried by perpetrator(s); shown excavated

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OTHER ORDNANCE ITEMS USED AS IEDs: CRATERING CHARGE

Concrete camouflage common



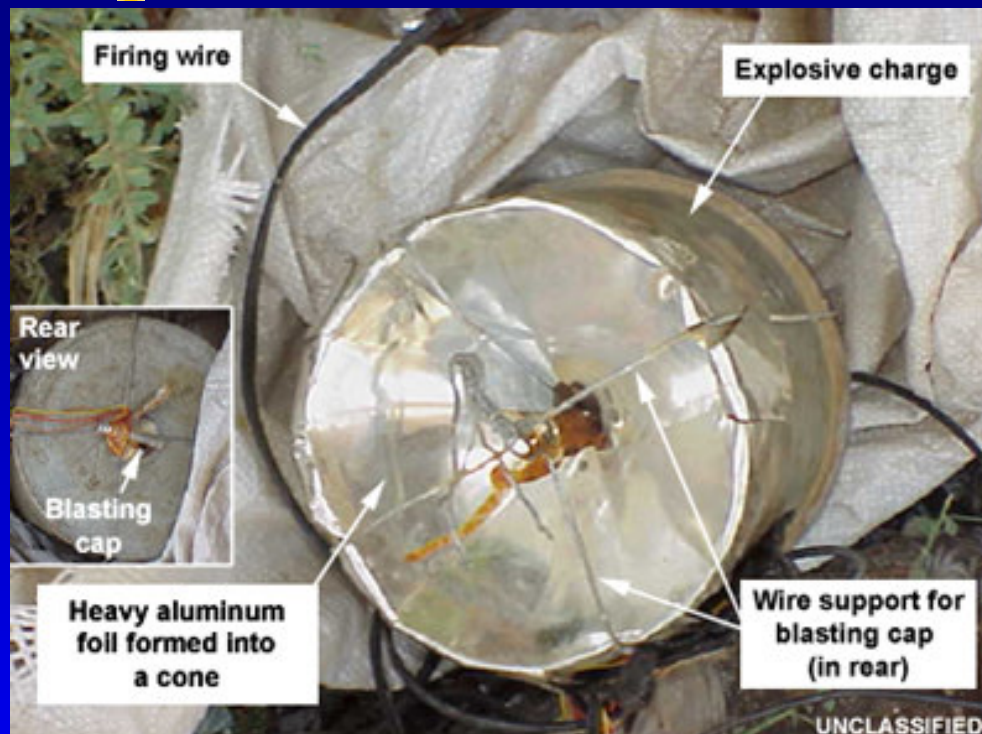
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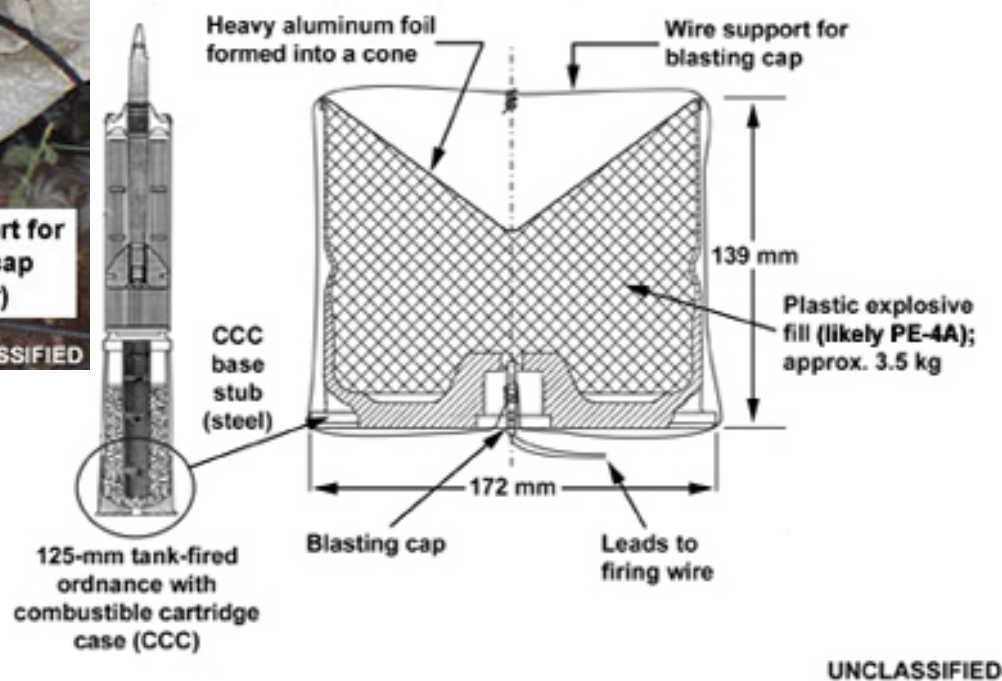
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IMPROVISED SHAPED CHARGE



- Fashioned from the stub base of a 125-mm CCC
- Crude aluminum foil liner



While the device probably would not form a jet, it indicates a basic working knowledge of shaped charges

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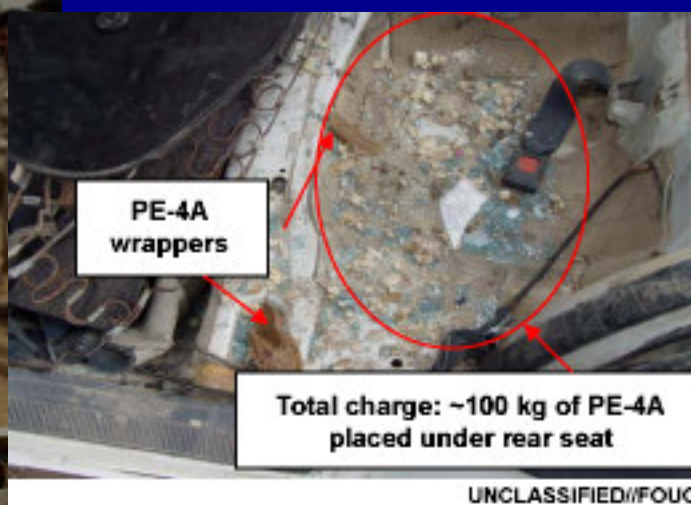


VEHICLE-BORNE IEDs (VBIEDs)

EXAMPLE: Attempted Attack, Ministry of Interior, Irbil, 16 Oct 03



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PE-4A
wrappers

Total charge: ~100 kg of PE-4A
placed under rear seat

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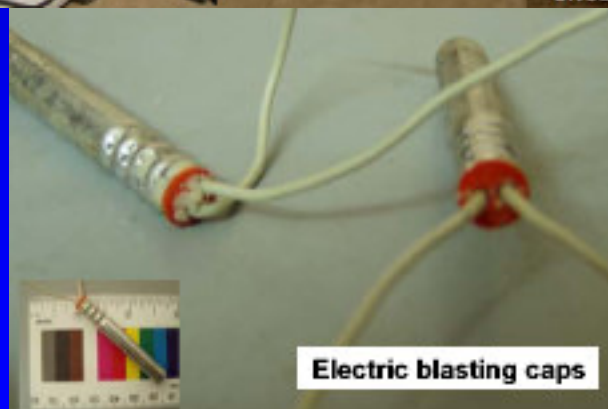


PE-4A

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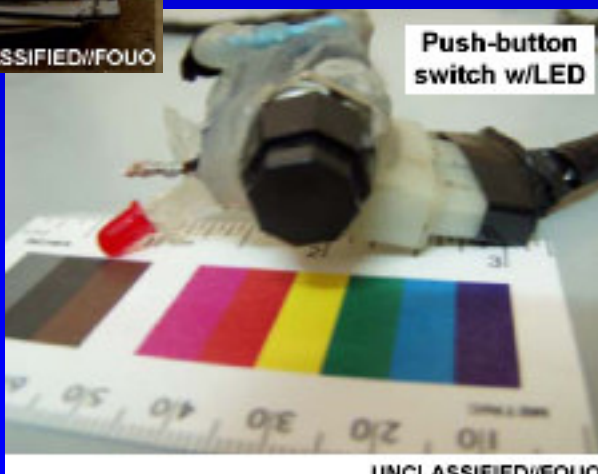


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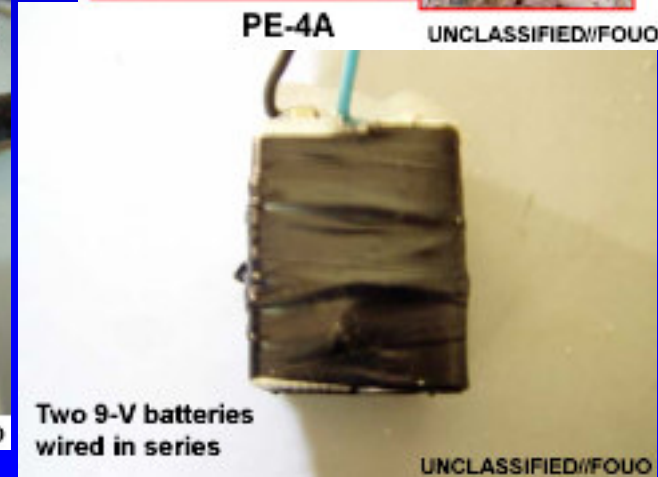
Electric blasting caps

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Push-button
switch w/LED

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PE-4A

Two 9-V batteries
wired in series

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COORDINATED VBIED ATTACKS

Five Total in Baghdad Area, 27 Oct 03

1) Al Bayra Police Station, 0820L



**Both charges estimated to
be ~ 500 kg in size**



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2) Red Cross Bldg, 0830L



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COORDINATED VBIED ATTACKS

Five Total in Baghdad Area, 27 Oct 03

**Both charges estimated to
be ~ 500 kg in size**



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COORDINATED VBIED ATTACKS

Five Total in Baghdad Area, 27 Oct 03

5) New Police Station: Failed Attempt, 1015L



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IEDs: LESSONS LEARNED FROM THEATER

Recommendations for Coalition vehicles/forces:

- **Do not stop for/attempt to move items on/near roadways, to include boxes, bags, debris, animal carcasses, unexploded ordnance, soda cans, concrete blocks, and disabled vehicles**
- **Give wide clearance to any obstacles**
- **Never approach a suspected IED**

***ALWAYS NOTIFY EOD PERSONNEL
IF A SUSPECTED IED IS ENCOUNTERED***

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